MedTracks Research – NHS Highland Study

Summary of Findings

MedTracks is a mobile application that uses resonant music as a medication reminder tool. The app allows users to associate each medication dose with a memorable music clip. Our research has shown that it makes medication reminders more noticeable, more engaging and reduces missed medications.

MedTracks was developed by Memory Tracks Ltd and the research into its effectiveness was funded through Innovate UK's SBRI programme, delivered in partnership with NHS Highland. The study focused on adults aged over 40 who were taking multiple prescribed medications for conditions associated with a higher risk of developing dementia. In this group, good adherence is particularly important, as consistent medication use can support better health outcomes.

The Research Study

The primary objective of the study was to assess the feasibility of using the MedTracks music-based reminder app with target users in the Scottish Highlands. The evaluation was conducted over a 30-day period to measure changes in self-reported medication adherence. It also assessed the usability of the app and explore, qualitatively, the experience of using memorable musical cues.

31 participants aged 40+ from the target user group in the Scottish Highlands took part in the research. Participants installed the app on their smartphone and scheduled relevant medication reminders to their selected music. At the time of notification, the app played the relevant song along with an informative on-screen notification.

The evaluation used a mixed-methods design that included:

- Medication Adherence Rating Scale (MARS10) on day 0 (baseline) and day 29 (end of trial).
- *Usability* was assessed using the System Usability Scale (SUS).
- *Quantitative data* to identify the effectiveness of the notifications and hearing the music
- *Qualitative feedback* came from baseline and follow-up questionnaires and semi-structured interviews with a subset of participants (n=14) after the 30-day period.

Key Findings

The main quantitative outcome was a change in self-reported adherence as measured by MARS10.

- The analysis showed a statistically significant change in adherence over the 30-day period and in the context of a relatively high adherence cohort.

- Specifically, the study showed a 14.5% decrease in missed dosages and a 13.2% decrease in forgetting to take medication.
- Exposure to the app reminders confirmed that most participants saw the home screen notification and heard the memorable song even when the app was not open.

The latter point show that the core reminder mechanism – visual notification plus music cue – was reaching most participants at the right times and that this was associated with meaningful improvements in adherence behaviours.

The report notes that these results are consistent with wider evidence. Meta-analyses by Armitage et al. (2020) suggest that medication reminder apps generally have a positive impact on adherence. The qualitative findings on musical cues as memory aids align with emerging work by Derks-Dijkman et al. (2024), reinforcing the plausibility of the underlying approach.

User Experience and Qualitative Insights

Qualitative data from questionnaires and interviews highlighted a strong, positive response to the use of music as a reminder. Participants generally found the music-based prompts more engaging and less intrusive than standard alarms.

- Users often described the music as more pleasant and more motivating than generic tones. For some, it introduced a sense of familiarity or enjoyment into an otherwise routine task.
- The distinctive nature of the song clips made it easier to distinguish a medication reminder from other phone alerts, reducing the risk of ignoring it.
- Some participants felt that the regular use of the same song clip helped to reinforce habits and made it easier to remember their medicines even away from the phone.

At the same time, the study identified areas for improvement in the app's user interface and user experience. While the core concept and functionality were well received, some participants encountered difficulties or friction with aspects of navigation, set-up, or notification handling. These issues did not undermine the overall acceptability of the intervention, but they do indicate where further refinement is needed to support broader adoption and sustained use.

Feasibility and Acceptability

The study concluded that MedTracks is feasible to implement with the target user group who were able to install and configure the app demonstrating sound usability. The feasibility findings are particularly relevant given the demographics and geography of NHS Highland, where digital literacy, connectivity and service access can vary widely.

Implications for Patients, Clinicians and the Health System

For patients, the results suggest that a music-based reminder app can:

- Reduce missed and forgotten doses.
- Make the act of taking medication feel more supported and less like a chore.
- Provide an enjoyable and personalised element to daily self-management.

For clinicians, this kind of intervention may help address adherence challenges that are otherwise difficult to influence in routine practice. While the app does not replace clinical judgement or medication reviews, it can serve as a simple, scalable support tool that patients use independently between appointments.

For the wider health system, improved adherence has potential downstream benefits, including better disease control, fewer avoidable complications and more efficient use of medicines. Given that this study targeted a group at higher risk of dementia, even modest improvements in adherence may contribute to longer-term risk reduction and quality of life, though these outcomes were not directly measured in this phase.

Next Steps

Based on the findings, the report indicates that MedTracks has significant potential to improve medication adherence in the target group, and that further development and evaluation are justified. We will continue to improve the interface and user experience with simpler navigation and notifications.

The MedTracks team would like to see larger-scale and longer-term studies, ideally including more robust outcome measures and if possible, controlled comparisons, to quantify the impact on adherence and explore links with clinical outcomes.

Conclusion

The NHS Highland MedTracks study provides promising evidence that using memorable music as medication reminders is both feasible and beneficial for adults over 40 taking medicines linked to dementia risk. Despite working with a cohort that already showed relatively good adherence, the app was associated with statistically significant reductions in missed and forgotten doses, and it was generally well received by users.

The findings align with wider evidence that digital reminder tools improve adherence and that musical cues can support memory. They also highlight the importance of thoughtful user-centred design to ensure that an innovative concept translates into a smooth, reliable experience in everyday life.

Overall, the report supports continued development of MedTracks and points towards a broader role for music-based digital tools in helping people manage their medicines effectively, with potential benefits for patients, clinicians and the wider health system.

Link for more information